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GRAND TETON NATIONAL PARK
STATUS OF THE MOUNTAIN PINE BEETLE INFESTATION
1935

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GRAND TETON NATIONAL PARK

Status of the Mountain Pine Beetle Infestation 1935

An extensive examination of the mountain pine beetle infestation within the lodgepole pine stands of the Grand Teton National Park was made by the writer during early September 1935. The purpose of this examination was to determine what changes in the status of the infestation had occurred during the past season, as well as the possibility of instituting artificial control for the preservation of the scenic forests which are at stake. Though this season's survey was extensive, it is believed that, with the history of the infestation being available from the past four years' survey, the data secured were sufficient to indicate the present situation. A description of the present status of the infestation within the lodgepole pine stand follows.

JENNY'S LAKE UNIT

This area covers the mature lodgepole pine stands around the foot of Jenny's Lake and includes the Jenny's Lake camp ground. As this unit is visited by all tourists, the timber stands, which contribute materially to the beauty of the area, carry a high scenic value. The destruction of the lodgepole within this unit would practically ruin the camp ground and seriously detract from the beauty of the vista presented to all visitors. In this area the forest type is practically a pure lodgepole stand of mature trees.

though there are a few spruce and fir along the lake shore. An epidemic of the mountain pine beetle within this area will in a very short time destroy a large percent of the forest cover.

An examination of this area in August 1931 revealed the presence of a few lodgepole pine trees infested with the mountain pine beetle. Control measures, which extended southward into the timber stand of the Lakes Unit east of Bradley Lake, were instituted within this area in the spring of 1932. At that time some 235 trees were treated, which provided a thorough clean-up of the infestation within the treated area. Though at that time the infestation could not have been classed as an epidemic, it was very evidently of recent origin, as there were but few red-tops (1930 attacks) recorded.

Jenny's Lake Unit				
Year	Acres	Infested trees per acre	Total infested trees	Remarks
1931	200*	.437	87	Treated spring 1932
1932	200	.000	0	
1933	200	.000	0	
1934	200	.000	0	
1935	200	.25	50	A few red-tops were recorded, indicating that there were some infested trees in 1934.

* The accuracy of the acreage figure is questionable.

The only conclusion that can be drawn from the above data is that an infestation has again started within this unit, which must have

originated from some of the more heavily infested areas either within the Park or from some more distant region.

Though in the Jenny's Lake camp ground there are a number of trees harboring attacks of secondary bark beetles, their death has been caused by mechanical injuries and disturbances resulting from excessive camping, a condition which for a number of years we have been pleased to call "tourist kill". Though the mechanical injury to trees within camp grounds resulting from tourist activity is not an entomological problem, it is a matter with which the entomologist is vitally concerned, as it contributes directly to what is often improperly considered as a forest insect problem. Trees dying from the effects of a severe mechanical injury or a disturbance of normal environmental conditions are nearly always attacked by secondary bark beetles, which are often improperly considered as being the agency responsible for the death of the trees in question. Though in many cases the insect attack does hasten the death of such decadent trees by a year or more, it can not be considered as the primary killing agency. If one can be permitted to base a prediction upon what has happened in other camp grounds where similar conditions existed, a large percent of the trees within the Jenny's Lake camp ground will die within the next ten years as a direct result of "tourist kill" unless some action is taken to restore this timber stand to a normal growing condition. As a result we are confronted with two agencies, the mountain pine beetle epidemic and the "tourist kill", menacing the future of the trees within this camp ground, both of which will need be considered in any plan for its preservation.

LAKES UNIT

This unit includes the lodgepole pine stands lying along the lower slopes of the mountains and extends northward from Headquarters to the Jenny's Lake unit. In this unit the rather pure stand of lodgepole pine gives way to Douglas fir at an elevation of some few hundred feet above the floor of the valley. The lodgepole pine varies in age from thick reproduction to open, mature stands.

Lakes Unit				
Year	Acres	Infested trees per acre	Total infested trees	Remarks
1931	1,950	.10	200	Treated spring 1932
1932	"	.00	0	
1933	"	.142	276	
1934	"	.153	298	
1935	"	.21	409	

The above data would indicate that, though there has been no great change in the status of the situation during the past season, an infestation exists which unless checked can build and would now seem to be building into a serious outbreak. The reinfestation which followed the institution of control within the northern portion of this area undoubtedly originated from other infested areas.

BEAVER CREEK UNIT

This unit lies along the foot of the steep mountain slope and extends south from Beaver Creek to the rock slide near the Trail Ranch.

The presence of this spot of heavy infestation was not recorded until the fall of 1933, when it was reported by Park officials. Previous to that time the acreage of this small unit had been included in the Windy Point area and was not set up as a separate unit until the 1934 survey.

Beaver Creek Unit				
Year	Acreage	Infested trees per acre	Total infested trees	Remarks
1934	300	3.15	945	
1935	300	1.75	525	Strips not entirely satisfactory

Though this year's data indicate a rather substantial reduction in the infestation of this unit, it must not be taken as an indication of the general trend of the epidemic within the park. Though this year's data were perhaps a fairer sample than that secured last year, the two year's data are not comparable, as in 1934 the sample strips were located in some of the most heavily infested portions of the unit. This year the sample strips missed these spots of heavy infestation, which gave a lower tree-per-acre figure.

WINDY POINT UNIT

This unit lies to the south of Headquarters and included all lodgepole pine acreage in that portion of the Park, with the exception of a small spot of heavy infestation near Phelps Lake, which was

established as an individual unit in 1934. The survey data secured from this unit during the past five years present an interesting history of the infestation.

Windy Point Unit				
Year	Acres	Infested trees per acre	Total infested trees	Remarks
1931	3,600	.00	0	One or two pitched-out mountain pine beetle attacks.
1932	"	.00	0	No red-tops
1933	"	.35	1,260	No red-tops
1934	"	.43	1,573	
1935	"	2.56	9,216	

The above data show quite clearly the progressive development of what may now be considered as a severe infestation within this unit. One may feel safe in saying that in the course of the next three or four years a large percent of the timber in this unit will be destroyed by insects.

PHILPS LAKE UNIT

This unit is a small area of some 150 acres which in 1934 was found to be supporting an infestation of the mountain pine beetle considerably heavier than the remainder of the Windy Point Unit. At that time the infestation averaged 3.62 trees per acre, with an estimated total of some 500 trees. Though no sample strip was run in

this small area this year, from observation it is believed that the loss will be practically the same as in 1934.

Phelps Lake Unit				
Year	Acres	Infested trees per acre	Total infested trees	Remarks
1934	150	3.62	500	
1935	150	3.62	500	1935 data are estimates only

Summary Table of all Units				
Unit	Infested trees per acre 1934	Infested trees per acre 1935	Total infested trees 1934	Total infested trees 1935
Jenny's Lake	0	.25	0	50
Lakes	.153	.21	298	409
Beaver Creek	3.15	1.75	945	525
Windy Point	.43	2.53	1,573	9,216
Phelps Lake	3.62	3.62	500	500
				10,700

In addition to the lodgepole pine infestation there is also an infestation in the whitebark pine stands at the higher elevations of the Teton Mountains. Owing to the inaccessability of these areas no attempt was made to include them in this season's survey. However, in some of the areas viewed from a distance there did not seem to be as many red-tops as observed during the previous season.

The Grand Teton National Park is a part of the so-called Yellowstone infestation unit, which in 1934 supported an infestation of such a magnitude that control was considered impracticable. However, in the spring of 1935 it was decided that the scenic timber stands of the Teton Park were of sufficient value to justify the expenditure necessary for the institution of artificial control, in the hopes that such values might be preserved. Though this recommendation was approved, it is unfortunate that funds were not available for the \$21,000 allotment requested for the desired clean-up. Had this project been instituted and a thorough clean-up made of the infestation within the different units, the feasibility of the project would have been rather clearly demonstrated by the amount of re-infestation which occurred during the 1935 season. Though at this time there are more trees infested, there has been no change in the entomological status of the situation though it is true that a larger expenditure of funds than contemplated for the spring of 1935 would be required for the institution of control in 1936. It is now very evident that rapidly increasing epidemic exists within the lodgepole pine stands of the Park, which if not checked by artificial or natural means will undoubtedly destroy a large percent of the timber at stake. Though there has been a marked increase in the number of infested trees, it is entirely possible for such an increase to have originated from the infestation already present.

On the other hand, one can not say that part of the marked increase in the Windy Point unit was not due to the flight of insects from other areas.

Theoretically, the institution of control on any portion of an infestation unit will not give satisfactory results, as the treated areas are expected to be reinfested from the untreated ones adjacent. However, this premise does not always hold true, and it is rather impossible to accurately predict the extent of the devastation which is going to occur on each portion of an accepted infestation unit of such a large acreage as the Yellowstone Project Unit. Therefore, there is a possibility that if the infestation within the area in question is eliminated the epidemic can be averted and the remaining timber stands preserved from the destruction which is rather sure to follow if no action is taken. If it is decided that the values at stake are sufficient to justify the expenditure of funds necessary for the institution of control, it must be fully understood that such a project would be but a chance to save the timber stands that would otherwise be destroyed and that no guarantee of success can be given. The success of such a project would depend entirely upon the extent to which the insects flew into the Park from adjacent untreated areas. However, in view of the value of the scenic timber stands of this area, it would seem that the necessary expenditure would be justified on the chance that success would follow.

In contemplating this project it is estimated that there are perhaps 12,000 infested lodgepole requiring treatment. In addition to the lodgepole pine infestation all of the accessible whitebark pine areas should be covered by control. Though last year the sum of \$21,000 was set up for the treatment of some 4,000 trees, it is believed that the present infestation of lodgepole pine and accessible whitebark pine can be treated for approximately \$35,000. It is possible that with the lower scales of wages now in effect a smaller sum would be sufficient; however, this figure is based upon the cost of past projects of a similar nature.

An attempt has been made to present both sides of this situation as clearly as possible; however, the writer will be glad to write in more detail concerning any phase of this project that is not entirely clear.

Respectfully,

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